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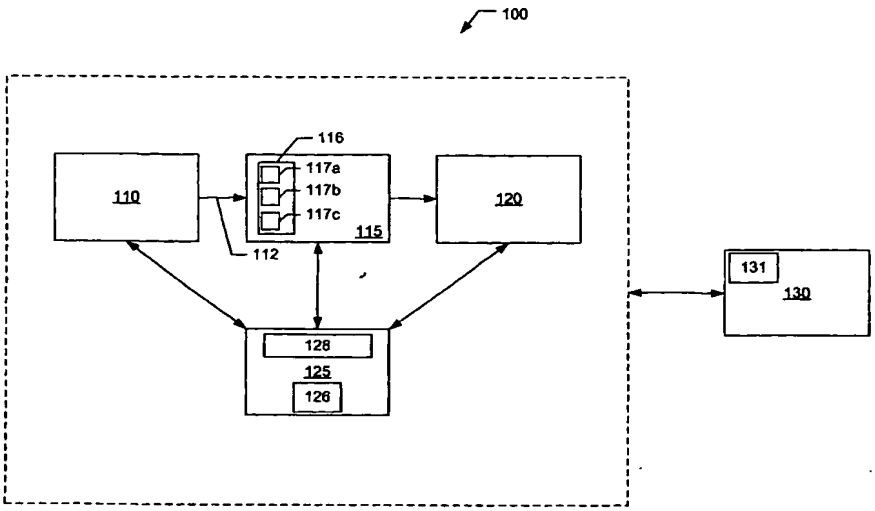
(54) Title: SYSTEM FOR ALTERNATELY PULSING ENERGY OF ACCELERATED ELECTRONS BOMBARDING A CONVERSION TARGET



(57) Abstract: A RF linear electron accelerator system for generating a beam of accelerated electrons bunched in pulses having different energy spectra from pulse to pulse. The system is operable to generate a beam of high energy X-rays from such beam of accelerated electrons, using a conversion target, with pulses of the X-ray beam having energy spectra which are different from X-ray pulse to X-ray pulse. Preferably, the pulses of the electron beam have energy spectra which alternate from pulse to pulse and, correspondingly, the pulses of the X-ray beam have energy spectra which alternate from pulse to pulse. Also preferably, the current of electrons injected into the system's accelerating section and the frequency of the pulse RF power supplied to the accelerating section are changed in a synchronized manner to generate the electron beam. The system is employable in an inspection system for discriminating materials present in containers by atomic numbers.

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